20060730.ba v03_n941.bam.20060730

>From ???@??? Sun Jul 30 17:01:37 2006 -0500
Date: Sun, 30 Jul 2006 22:00:17 GMT
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 3941
Message-Id: <20060730220018.649721B813E@srvr1.theporch.com>

BOATANCHORS Digest 3941

Topics covered in this issue include:

1) test msg - do not reply
   by Tom Norris <r390a@bellsouth.net>
2) Re: A Sucker Born Every Minute....
   by "Sandy W5TVW" <ebjr@i-55.com>
3) RE: Re super pro
   by wb3fau@att.net
4) Re: Re super pro
   by "Tom Rauch" <w8ji@contesting.com>
5) HRO-500 thoughts and a need
   by "Rodger Singley" <rbsingl@ilstu.edu>
6) RE: [Milsurplus] RU_GF
   by "Ed Zeranski" <ezeran@ezeran.cnc.net>
7) Re: HRO-500 thoughts and a need
   by "Morris Odell" <vilgotch@bigpond.net.au>
8) Re: HRO-500 thoughts and a need
   by Ben Hall <kd5byb@bellsouth.net>
9) Re: HRO-500 thoughts and a need
   by "Sandy W5TVW" <ebjr@i-55.com>
10) GE Design? Lead-Acid Battery Charger-Off Topic a little
   by "David M. Upton" <david@wb1cmg.mv.com>
11) RE: GE Design? Lead-Acid Battery Charger-Off Topic a little
   by "Bill Hawkins" <bill@iaxs.net>
12) Re: HRO-500 thoughts and a need
   by Robert Nickels <w9ran@oneradio.net>
13) Re: HRO-500 thoughts and a need
   by "Arden Allen" <gumbear@pacbell.net>
14) Re: HRO-500 thoughts and a need
   by "James C. Garland" <4cx250b@muohio.edu>
15) RE: HRO-500 thoughts and a need
   by "Rodger" <WQ9E@dtnspeed.net>
16) RE: HRO-500 thoughts and a need
   by "Rodger" <WQ9E@dtnspeed.net>

Mime-Version: 1.0 (Apple Message framework v752.2)

Content-Transfer-Encoding: 7bit
Message-Id: <337CC9B2-1E65-4D3C-B7AC-15F4981DA51D@bellsouth.net>
Content-Type: text/plain; charset=US-ASCII; delsp=yes; format=flowed
To: Old Tube Radios <boatanchors@theporch.com>
From: Tom Norris <r390a@bellsouth.net>
Subject: test msg - do not reply
Date: Sat, 29 Jul 2006 15:14:40 -0500

de NU4G test msg test msg

Just seeing if I'm receiving messages or Bellsouth is bouncing
again. I'm getting messages from the list that are replies to list
messages never received. That and my total inbox count for all 13
groups I'm subscribed to has been about a dozen messages over the
course of 18 hours. Spam, of course, is getting through fine.

de NU4G test msg test msg sk sk sk

Message-ID: <000901c6b34c$d5d60fe0$f9a1cdd1@s0023531634>
From: "Sandy W5TVW" <ebjr@i-55.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: A Sucker Born Every Minute....
Date: Sat, 29 Jul 2006 15:23:20 -0500
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

All one has to do is look at "Headlines" on Jay Leno's show monday nights! Also
the
"Man on the street" segments!

People ain't so smart these days!

73,
Sandy W5TVW
----- Original Message -----
From: "Grant Youngman" <nq5t@comcast.net>
To: "Old Tube Radios" <boatanchors@theporch.com>
Sent: Saturday, July 29, 2006 2:20 PM
Subject: RE: A Sucker Born Every Minute....

| > If you thought the audiophools were a hoot, try this one:
| > http://www.toolsforhealing.com/Products/EMFProducts/EMFHomePage.html
| >
| >

|
| That's a scream.
|
| Proof positive that we're having serious problems with the gene pool --
| although the scumbags taking advantage of it don't seem to have been
| affected yet. They just better watch who they reproduce with :-)
|
| If they could include some some verbage like "liquid and ethereal highs",
| "transparent mids", or show that one of those 12-point electromagnetic
| Plugbuster thingamabobs could reduce the harmonic distortion created in
| copper cable, by darn, they'd HAVE something :-)
|
| Grant/NQ5T
|
|
|
| --
| No virus found in this incoming message.
| Checked by AVG Free Edition.
| Version: 7.1.394 / Virus Database: 268.10.5/403 - Release Date: 7/28/2006
|
|

From: wb3fau@att.net
To: Old Tube Radios <boatanchors@theporch.com>
Cc: "phil" <signetics@netzero.com>
Subject: RE: Re super pro
Date: Sat, 29 Jul 2006 20:52:58 +0000
Message-Id:
<072920062052.13137.44CBCAA7000C42270000335121602806519A0E00CC0D99@att.net>

Hello Ed and gang- I repost this in hopes of finding someone who has seen or done sensitivity tests on a NC-300. This is a lot better receiver than it really gets credit for. I know about the sales hype. This was a very hot performer in 1955.   Russ.

Message-ID: <02b801c6b364$17bece80$640fa8c0@radioroom>
From: "Tom Rauch" <w8ji@contesting.com>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: "phil" <signetics@netzero.com>
Subject: Re: Re super pro
Date: Sat, 29 Jul 2006 19:09:41 -0400
MIME-Version: 1.0
Content-Type: text/plain;
     format=flowed;

charset="iso-8859-1";
reply-type=original
Content-Transfer-Encoding: 7bit

> Hello Ed and gang- I repost this in hopes of finding
> someone who has seen or done sensitivity
> tests on a NC-300. This is a lot better receiver than it
> really gets credit for. I know
> about the sales hype.

Of all the boatanchors I had the NC300 was one of my
favorites. I still remember listening to DHJ on 160 meters
with one. That S meter and AGC on CW was great. It was
worlds better than my HQ180.

I have at least one around here now. I have the equipment to
do all sorts of measurements. I lack motivation but fully
intend to go to motivational seminars as soon as I get the
energy.

73 Tom

From: "Rodger Singley" <rbsingl@ilstu.edu>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: HRO-500 thoughts and a need
Date: Sat, 29 Jul 2006 21:37:32 -0500
Message-ID: <000001c6b381$1c2de240$0f01640a@D1JXNQ31>
MIME-Version: 1.0
Content-Type: text/plain;
charset="us-ascii"
Content-Transfer-Encoding: quoted-printable

I finally got back to the HRO-500 which has been waiting repair and
alignment. When I received it, the synthesizer would not lock though it
also did not light the unlock lamp or mute the receiver. The problem =
was a
bad 1 uf cap in the "sweeper" circuit which is designed to swing the VCO
through a fairly wide range till it achieves lockup. The voltage is =
also
used to turn on the unlock warning lamp and mute the receiver. It also =
had
grit in the PW tuning dial so I had to take it apart and clean it to =
restore
the smooth tuning that this receiver is designed to deliver. After this =
and
alignment, it does work very well and the synthesizer locks quickly and

surely on all ranges. It does tend to overload on the AM BCB thus some =
use
of the attenuator is needed but the stability and selectivity are =
excellent.
I am missing the metal trim cap on the passband tuning control so if =
anyone
has a spare knob please let me know!=20

HOWEVER... as others have stated this is not an easy receiver to =
repair.
The mechanical design is terrible when compared to the elegance of some =
of
the earlier National receivers. It includes such dubious features as:

1. adjusting the VFO inductor is almost impossible with the synthesizer
drum dial in place since the adjusting screw is mounted below in an
inaccessible location; had National just brought the tuning adjustment =
out
to the bottom of the VFO box like they did with the trimmer cap life =
would
have been much easier! Mine was far enough off in linearity to make
adjustment necessary; if it is fairly close I would not bother.

2. one of the section dividing shields in the synthesizer section is
centered on and just above the trimmer caps making it difficult at best =
to
align this section.

3. My favorite, it took about 30 minutes to replace the lamps in the
synthesizer drum. You must go through several steps to remove this drum
(which does not fit easily through the access slot) just to get to the
lights inside. Of course, you must carefully put the drum back as it =
was so
as not to throw off the calibration. The 1815 lamp which lights the =
pretty
little red indicator above the PW dial also is in a tough to access =
location
and I probably spent a couple of minutes on this lamp as there is little
room to push and turn to seat it into its socket. I found the best =
method
was to push and hold the lamp down with a finger while using a precision
screwdriver to rotate the pin into the locked position.

4. In general, most component access is not great and generally getting =
to
the area needing repair requires parts removal in other areas; I know a =
lot
of rigs fit into this category but I have A LOT of boat anchors from =

many
different manufacturers and the HRO-500 is the most difficult of the =
group.

I really do like the receiver but given parts access, I hope it is a =
long
time before I have the case off again. My previous project was an Racal
RA-17 which is now working beautifully and the Racal was obviously built
with ease of repair/alignment in mind. I have a number of HRO receivers
including the 5, M, 7, 50T, 50T1, and 60 and several of the NC series
including the 100 and 101X, 183, 183D, 300, and 400. Since I saw the
Popular Electronics article on the HRO-500 I have wanted one and I am =
glad
to have a working one but if the synthesizer drum lights burn out =
anytime
soon I will probably be headed for a padded room where no tubes or HV is
available.

Rodger WQ9E=20

From: "Ed Zeranski" <ezeran@ezeran.cnc.net>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: <boatanchors@theporch.com>,
     <armyradios@yahoogroups.com>,
     <arc5@ix.netcom.com>
Subject: RE: [Milsurplus] RU_GF
Date: Sat, 29 Jul 2006 20:34:11 -0700
Message-ID: <EMEPKDEJDNHEMLEAHGKHOEFFDAAA.ezeran@ezeran.cnc.net>
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

Subject: [Milsurplus] RU_GF

I'm looking for parts to build up an RU/GF set. The junction box I have,
CW-62017 junction box,

OK, I'm back home and have rechecked my RU/GF pile. I was wrong on the
junction box number. What I have is CW-62018 for the RU-17 that I believe is
24 volts. The j box for RU-16 is 12/14 Vdc CW-62008. The RU-17 jbox I have
is missing connector #37. So I guess I need CW-62008. I have the RU-17 box
to swap as well as a really nice RU-17 dynamotor CW-21454A and RU-17 RX box
CW-23096A. I do not have antenna relay CW-23049 which would be nice, but the

set will work without.

EdZ

Message-ID: <000801c6b390$bf59be30$ad00a8c0@Morris1>
From: "Morris Odell" <vilgotch@bigpond.net.au>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: HRO-500 thoughts and a need
Date: Sun, 30 Jul 2006 14:29:29 +1000
MIME-Version: 1.0
Content-Type: text/plain;
     format=flowed;
     charset="iso-8859-1";
     reply-type=original
Content-Transfer-Encoding: 7bit

Rodger Singley wrote:

> but if the synthesizer drum lights burn out anytime
soon I will probably be headed for a padded room where no tubes or HV is
available.

It might not be for the purists, but I would fit LEDs in such a difficult
situation. I have certainly done it to equipment where I either can't get
the appropriate lamps or the job is difficult and I don't want to go there
again. These days you can even get high intensity LEDs with an
"incandescent" colour, but I just use the white ones.

Morris VK3DOC

Message-ID: <44CCB471.2080103@bellsouth.net>
Date: Sun, 30 Jul 2006 08:30:25 -0500
From: Ben Hall <kd5byb@bellsouth.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: HRO-500 thoughts and a need
Content-Type: text/plain; charset=ISO-8859-1; format=flowed
Content-Transfer-Encoding: 7bit

Plus LED's generate very little heat. On one of my receivers, probably
a Hallicrafters SX-24, there is evidence of heat damage from what I
assume was an incorrect bulb that ran too hot.

Anyone ever figured out how to substitute LED's for the hard-to-find
bulbs used in the URM-25D? Maybe that will be my project today. I was
going to play with Dallas Lankford's design for a loss-less Norton

amplifier, but I have been using that 25D a lot lately. My URM-25D, a
well used, slightly beat up, but well-functioning unit has both of the
lamps burned out.

Morris Odell wrote:
> It might not be for the purists, but I would fit LEDs in such a
> difficult situation. I have certainly done it to equipment where I
> either can't get the appropriate lamps or the job is difficult and I
> don't want to go there again. These days you can even get high intensity
> LEDs with an "incandescent" colour, but I just use the white ones.

Thanks and 73,
Ben, KD5BYB

Message-ID: <000201c6b3fc$5e042be0$7ba0cdd1@s0023531634>
From: "Sandy W5TVW" <ebjr@i-55.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: HRO-500 thoughts and a need
Date: Sun, 30 Jul 2006 09:25:47 -0500
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

I have worked on HRO-500's in the distant past. They were VERY popular on
Norwegian flag ships.
They were, indeed, a real 'dog' to work on. When everything was performing
normally, they were
wonderful receivers.
The largest drawback I saw in them was the PW dial knob mechanism on the HRO-500.
The "end stops"
were VERY fragile and made of pot metal. A radio officer that spun the dial and
banged it against
the end stops, soon broke the stops off. This eventually
would make the inner face with all the numbers "get out of sync" with the actual
dial position
causing gross inaccuracy in calibration. The only fix was to not over-run the
place where the end
stops were, or you had to disassemble the dial, "resync" the calibration
mechanically and keep away
from either extreme end!
Next was the "Wadley-loop" PLL circuitry. Aligning the set so the "locking"
points would coincide
with the "band segments" on the drum was a pain in the backside. If the receiver
was roughly
handled, it would knock that adjustment off so that the receiver would not "lock"
when the band

segment was exactly lined up properly. The mica
trimmers were exceedingly critical. Looks to me that the overall design was good, but the receiver
was a mechanical nightmare and mess. NOTHING was easy to "get at" and add this to the fact it used
what are now hopelessly obsolete germanium devices that have joined the ranks of "unobtanium" parts.
There was another exotic receiver called the Plessey PL-155 that was an extremely good receiver and
a wonderful machine to use......as long as it operated correctly! It was VERY hard to repair and
adjustments extremely critical to setup. Plus a few others I won't mention because I doubt is many
found their way into the amateur world.

73,
Sandy W5TVW
----- Original Message -----
From: "Rodger Singley" <rbsingl@ilstu.edu>
To: "Old Tube Radios" <boatanchors@theporch.com>
Sent: Saturday, July 29, 2006 9:37 PM
Subject: HRO-500 thoughts and a need

| I finally got back to the HRO-500 which has been waiting repair and
| alignment. When I received it, the synthesizer would not lock though it
| also did not light the unlock lamp or mute the receiver. The problem was a
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| through a fairly wide range till it achieves lockup. The voltage is also
| used to turn on the unlock warning lamp and mute the receiver. It also had
| grit in the PW tuning dial so I had to take it apart and clean it to restore
| the smooth tuning that this receiver is designed to deliver. After this and
| alignment, it does work very well and the synthesizer locks quickly and
| surely on all ranges. It does tend to overload on the AM BCB thus some use
| of the attenuator is needed but the stability and selectivity are excellent.
| I am missing the metal trim cap on the passband tuning control so if anyone
| has a spare knob please let me know!
|
| HOWEVER... as others have stated this is not an easy receiver to repair.
| The mechanical design is terrible when compared to the elegance of some of
| the earlier National receivers. It includes such dubious features as:
|
| 1. adjusting the VFO inductor is almost impossible with the synthesizer
| drum dial in place since the adjusting screw is mounted below in an
| inaccessible location; had National just brought the tuning adjustment out
| to the bottom of the VFO box like they did with the trimmer cap life would
| have been much easier! Mine was far enough off in linearity to make
| adjustment necessary; if it is fairly close I would not bother.

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| 2. one of the section dividing shields in the synthesizer section is
| centered on and just above the trimmer caps making it difficult at best to
| align this section.
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| synthesizer drum. You must go through several steps to remove this drum
| (which does not fit easily through the access slot) just to get to the
| lights inside. Of course, you must carefully put the drum back as it was so
| as not to throw off the calibration. The 1815 lamp which lights the pretty
| little red indicator above the PW dial also is in a tough to access location
| and I probably spent a couple of minutes on this lamp as there is little
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| screwdriver to rotate the pin into the locked position.
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| the area needing repair requires parts removal in other areas; I know a lot
| of rigs fit into this category but I have A LOT of boat anchors from many
| different manufacturers and the HRO-500 is the most difficult of the group.
|
|
| I really do like the receiver but given parts access, I hope it is a long
| time before I have the case off again. My previous project was an Racal
| RA-17 which is now working beautifully and the Racal was obviously built
| with ease of repair/alignment in mind. I have a number of HRO receivers
| including the 5, M, 7, 50T, 50T1, and 60 and several of the NC series
| including the 100 and 101X, 183, 183D, 300, and 400. Since I saw the
| Popular Electronics article on the HRO-500 I have wanted one and I am glad
| to have a working one but if the synthesizer drum lights burn out anytime
| soon I will probably be headed for a padded room where no tubes or HV is
| available.
|
| Rodger WQ9E
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|
|
| --
| No virus found in this incoming message.
| Checked by AVG Free Edition.
| Version: 7.1.394 / Virus Database: 268.10.5/403 - Release Date: 7/28/2006
|
|

Message-ID: <44CCF2CC.2000909@wb1cmg.mv.com>
Date: Sun, 30 Jul 2006 13:56:28 -0400

From: "David M. Upton" <david@wb1cmg.mv.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: GE Design? Lead-Acid Battery Charger-Off Topic a little
Content-Type: text/plain; charset=ISO-8859-1; format=flowed
Content-Transfer-Encoding: 7bit

Trying to resurrect a homebrew lead-acid battery charger of probably the late '60s vintage. Uses GE semiconductors throughout such as C20F SCR, C106F1 transistor, 1N1772 diode, 1N4001, and A40F diodes. Anyone recall such a circuit from application notes or wherever? My trusty 1963 GE manual of three-legged fuses doesn't have these so I am guessing just a bit later in time that these came along. The strong GE content makes me think that this was built-to-print from an article somewhere. Circuit includes a trickle charge that is independent of the main action. It functions as a pseudo current limited source. Of course, it doesn't seem to work at all and I find that strange given there isn't much to it. Any ideas appreciated.

David M. Upton, WB1CMG
Mont Vernon, NH 03057

From: "Bill Hawkins" <bill@iaxs.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: GE Design? Lead-Acid Battery Charger-Off Topic a little
Date: Sun, 30 Jul 2006 13:40:56 -0500
Message-ID: <000501c6b407$b1a4b4d0$0300a8c0@cyrus>
MIME-Version: 1.0
Content-Type: text/plain;
     charset="us-ascii"
Content-Transfer-Encoding: 7bit

David M. Upton, WB1CMG, asked about a vintage solid state battery charger.

IMHO, if it contains an SCR that means phase angle control and that means noise.

When you say "doesn't work," do you mean the box doesn't perform its function or that you've been inside, looked for visible clues, and measured voltages and other things?

I did some work with SCRs in variable frequency drives in the late 60's. Don't have any books left, but could probably explain a circuit, if you find or draw one.

Regards,

Bill Hawkins

Message-ID: <44CCFF56.8000706@oneradio.net>
Date: Sun, 30 Jul 2006 13:49:58 -0500
From: Robert Nickels <w9ran@oneradio.net>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
CC: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: HRO-500 thoughts and a need
Content-Type: text/plain; charset=ISO-8859-1; format=flowed
Content-Transfer-Encoding: 7bit

Sandy W5TVW wrote:

> When everything was performing normally, they were wonderful receivers.
>
>

Sandy adds some good points to Rodger's already long list of "gotchas" in this classic receiver. I also fight the touchy trimmer caps and depending on the temperature and humidity, the low or high ends of one or more bands is almost always out. I've always felt that the synthesizer IF is marginal on gain, leaving less tolerance for aging and component drift. Modern test equipment does make alignment much easier.

The series I have also uses the infamous ceramic capacitors that are prone to failing shorted due to silver migration. Carl KM1H once told me he'd replaced literally thousands of these caps when he worked for National, as the problem started to show up even back then. I guess that ought to be motivation for me to get busy and re-cap mine! Despite the oddities, it's a receiver well worth owning and restoring.

The only nit I would pick is that the HRO-500 isn't a Wadley Loop design. It's a phase locked loop synth that uses an analog rather than digital method of selecting the reference frequency, but stability is achieved means of a phase comparator that tunes a VCO, just as is done in any digital synthesizer. In contrast, Dr. Wadley's clever drift cancellation scheme mixes the received frequency up to a high IF frequency and then uses the same oscillator to generate a lower frequency. These signals are then remixed to generate the second IF frequency. It's the fact that most Wadley Loop receivers and the HRO-500 use analog harmonic generators that leads to the confusion.

73, Bob W9RAN

Message-ID: <001f01c6b40f$834c4280$51e47443@KB6NAX>
From: "Arden Allen" <gumbear@pacbell.net>

To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: HRO-500 thoughts and a need
Date: Sun, 30 Jul 2006 12:28:28 -0700
MIME-Version: 1.0
Content-Type: text/plain;
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

> Anyone ever figured out how to substitute LED's for the hard-to-find bulbs used in the URM-25D? Maybe that will be my project today. I was going to play with Dallas Lankford's design for a loss-less Norton amplifier, but I have been using that 25D a lot lately. My URM-25D, a well used, slightly beat up, but well-functioning unit has both of the lamps burned out.

Ben,

I figured out that sometimes I save time by spending time at the keyboard looking for parts on the web instead of going into evil genious mode to hatch a suitable modification. The bulb for the URM-25D is still available. Try BulbDirect.com. That's where I got bulbs for my 'D.

Arden Allen
KB6NAX

Message-Id: <7.0.1.0.2.20060730133113.021900f0@muohio.edu>
Date: Sun, 30 Jul 2006 13:41:02 -0600
To: Old Tube Radios <boatanchors@theporch.com>
From: "James C. Garland" <4cx250b@muohio.edu>
Subject: Re: HRO-500 thoughts and a need
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed

Guys,

I hate to swim against the current, but I've not had these problems with my HRO-500, although I agree completely about the need to be careful with the PW dial endpoints.

I acquired one of the NIB radios that were surplused in Barstow CA about ten years ago and had the pleasure of unpacking it in its sealed carton. When I turned it on, the synthesizer didn't lock properly, but it came into alignment easily and I've had no problems since.

Also, I don't think the access to components is all that bad. The radio uses point-to-point wiring, so most parts -- synthesizer excepted -- are as accessible as on a vacuum tube radio. The

synthesizer uses a comb generator and is actually pretty simple.
Lot's of guys are spooked by it, but it's not that hard to work on.

My biggest gripe with the radio is the sound of CW notes, which have
significant distortion. They sound almost like harmonica notes, and
the SSB audio isn't much better. I modified the product detector
circuit, as per an article in ER, but it didn't make any difference.
I attribute the problem to distortion caused by the 50 kHz pot core
resonators, but that's mostly because I can't think of any other
explanation. The alignment of the 50 kHz IF is pretty tricky, as I
recall. Rather than use the manual's suggestions, it's probably
better to use a sweep generator and an oscilloscope.

The AM audio on the receiver sounds fabulous, and it's about the
coolest looking radio of them all.
73,

Jim GarlandW8ZR

****
W8ZR Amateur Radio Website: www.w8zr.net
****

From: "Rodger" <WQ9E@dtnspeed.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: HRO-500 thoughts and a need
Date: Sun, 30 Jul 2006 15:13:43 -0500
Message-ID: <000001c6b414$a867fa50$c101640a@D1JXNQ31>
MIME-Version: 1.0
Content-Type: text/plain;
     charset="us-ascii"
Content-Transfer-Encoding: quoted-printable

Hi Jim and list,

Thanks for your comments on the HRO-500.

I wouldn't say it is the worst of my collection to work on but in some =
ways
it reminds me of the very early Yaesu Musen style of layout. Perhaps I =
have
been spending too much time on too many projects lately and became
frustrated with this radio too easily! I did spend 2.5 days prior to =

this
radio project removing a large portion of a tree which came down in a
windstorm. Going through 2.5 gallons of gas for the chainsaw in 95 =
degree
weather reminds me of post hurricane times growing up on the MS gulf =
coast.

My radio does sound great on AM, CW, and SSB, it is of the later serial =
#
series and doesn't appear to have been built with the problem outlined =
in ER
though I somewhat expected to also find that issue with the receiver. I
hope that you can find the issue with your SSB/CW reception as this one
sounds very nice-especially on CW in the .5 kc selectivity position.

Since I had the equipment, I re-checked the IF alignment using a sweep
generator after doing the first quick alignment using the "simple" =
method in
the manual. I really couldn't tell any difference in results between =
the
two methods but the sweep generator would probably work better if the
alignment was significantly off. The NC-270 and others (I believe the
300/303) use a similar 230 kc IF filter system and it does work well, I =
am
impressed with the skirt selectivity and clean sound.

Any chance that your BFO has some ripple or other undesired noise mixed =
in?
I did find that all of the electrolytic caps needed replacement in mine =
but
it has probably had a lot of on time compared to yours given that the =
dial
lamps were all burnt out.

I do really like the sound and looks of the receiver and will probably =
try
to add an NCX-5 to go with it shortly.

Rodger WQ9E

> -----Original Message-----
> From: owner-boatanchors@theporch.com [mailto:owner-
> boatanchors@theporch.com] On Behalf Of James C. Garland
> Sent: Sunday, July 30, 2006 2:41 PM
> To: Old Tube Radios
> Subject: Re: HRO-500 thoughts and a need
>=20
> Guys,

```
>=20
> I hate to swim against the current, but I've not had these problems
> with my HRO-500, although I agree completely about the need to be
> careful with the PW dial endpoints.
>=20
> I acquired one of the NIB radios that were surplused in Barstow CA
> about ten years ago and had the pleasure of unpacking it in its
> sealed carton. When I turned it on, the synthesizer didn't lock
> properly, but it came into alignment easily and I've had no problems
> since.
>=20
> Also, I don't think the access to components is all that bad. The
> radio uses point-to-point wiring, so most parts -- synthesizer
> excepted -- are as accessible as on a vacuum tube radio. The
> synthesizer uses a comb generator and is actually pretty simple.
> Lot's of guys are spooked by it, but it's not that hard to work on.
>=20
> My biggest gripe with the radio is the sound of CW notes, which have
> significant distortion. They sound almost like harmonica notes, and
> the SSB audio isn't much better. I modified the product detector
> circuit, as per an article in ER, but it didn't make any difference.
> I attribute the problem to distortion caused by the 50 kHz pot core
> resonators, but that's mostly because I can't think of any other
> explanation. The alignment of the 50 kHz IF is pretty tricky, as I
> recall. Rather than use the manual's suggestions, it's probably
> better to use a sweep generator and an oscilloscope.
>=20
> The AM audio on the receiver sounds fabulous, and it's about the
> coolest looking radio of them all.
> 73,
>=20
> Jim GarlandW8ZR
>=20
>=20
>=20
>=20
>=20
> ******************************************************************
> W8ZR Amateur Radio Website: www.w8zr.net
> **********************************************************

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From: "Rodger" <WQ9E@dtnspeed.net>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: HRO-500 thoughts and a need
Date: Sun, 30 Jul 2006 16:59:42 -0500
Message-ID: <000201c6b423$7656e8a0$c101640a@D1JXNQ31>
MIME-Version: 1.0
```

```
Content-Type: text/plain;
     charset="us-ascii"
Content-Transfer-Encoding: quoted-printable

Hi Bob and list,

I guess the good news is mine doesn't seem to have the troublesome =
ceramic
caps, one less thing to worry about.  I agree that the modern test =
equipment
really helps although I found that the best "tool" for aligning the
synthesizer was a digital entry shortwave receiver; it made setting the =
HFO
frequencies very easy.  I also used this to set the VFO endpoint
adjustments, I just wish that National didn't make the L adjustment so
difficult to reach!

I will soon have the RA-17 (Racal Wadley loop receiver) and the HRO-500 =
set
up together to do some informal comparisons.  The RA-17 is probably more
robust against minor alignment drift given its Wadley loop design but =
the
more conventional (unconventional?) PLL synthesizer in HRO-500 seems to =
work
very nicely now that it is aligned.  I am already confident that both =
will
easily beat the performance of my much simpler and less expensive =
Realistic
DX-302 and Drake SSR-1 Wadley loop designs!

Rodger WQ9E

> Sandy adds some good points to Rodger's already long list of "gotchas"
> in this classic receiver.  I also fight the touchy trimmer caps and
> depending on the temperature and humidity, the low or high ends of one
> or more bands is almost always out.  I've always felt that the
> synthesizer IF is marginal on gain,  leaving less tolerance for aging
> and component drift.  Modern test equipment does make alignment much
> easier.
>=20
> The series I have also uses the infamous ceramic capacitors that are
> prone to failing shorted due to silver migration.  Carl KM1H once told
> me he'd replaced literally thousands of these caps when he worked for
> National, as the problem started to show up even back then.  I guess
> that ought to be motivation for me to get busy and re-cap mine!  =
Despite
> the oddities, it's a receiver well worth owning and restoring.
>=20
```

> The only nit I would pick is that the HRO-500 isn't a Wadley Loop
> design. It's a phase locked loop synth that uses an analog rather =
than
> digital method of selecting the reference frequency, but stability is
> achieved means of a phase comparator that tunes a VCO, just as is =
done
> in any digital synthesizer. In contrast, Dr. Wadley's clever drift
> cancellation scheme mixes the received frequency up to a high IF
> frequency and then uses the same oscillator to generate a lower
> frequency. These signals are then remixed to generate the second IF
> frequency. It's the fact that most Wadley Loop receivers and the
> HRO-500 use analog harmonic generators that leads to the confusion.
>=20
> 73, Bob W9RAN

> -----Original Message-----
> From: owner-boatanchors@theporch.com [mailto:owner-
> boatanchors@theporch.com] On Behalf Of Robert Nickels
> Sent: Sunday, July 30, 2006 1:50 PM
> To: Old Tube Radios
> Cc: Old Tube Radios
> Subject: Re: HRO-500 thoughts and a need
>=20
> Sandy W5TVW wrote:
> > When everything was performing normally, they were wonderful =
receivers.
> >
> >
> Sandy adds some good points to Rodger's already long list of "gotchas"
> in this classic receiver. I also fight the touchy trimmer caps and
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> 73, Bob W9RAN

End of BOATANCHORS Digest 3941
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